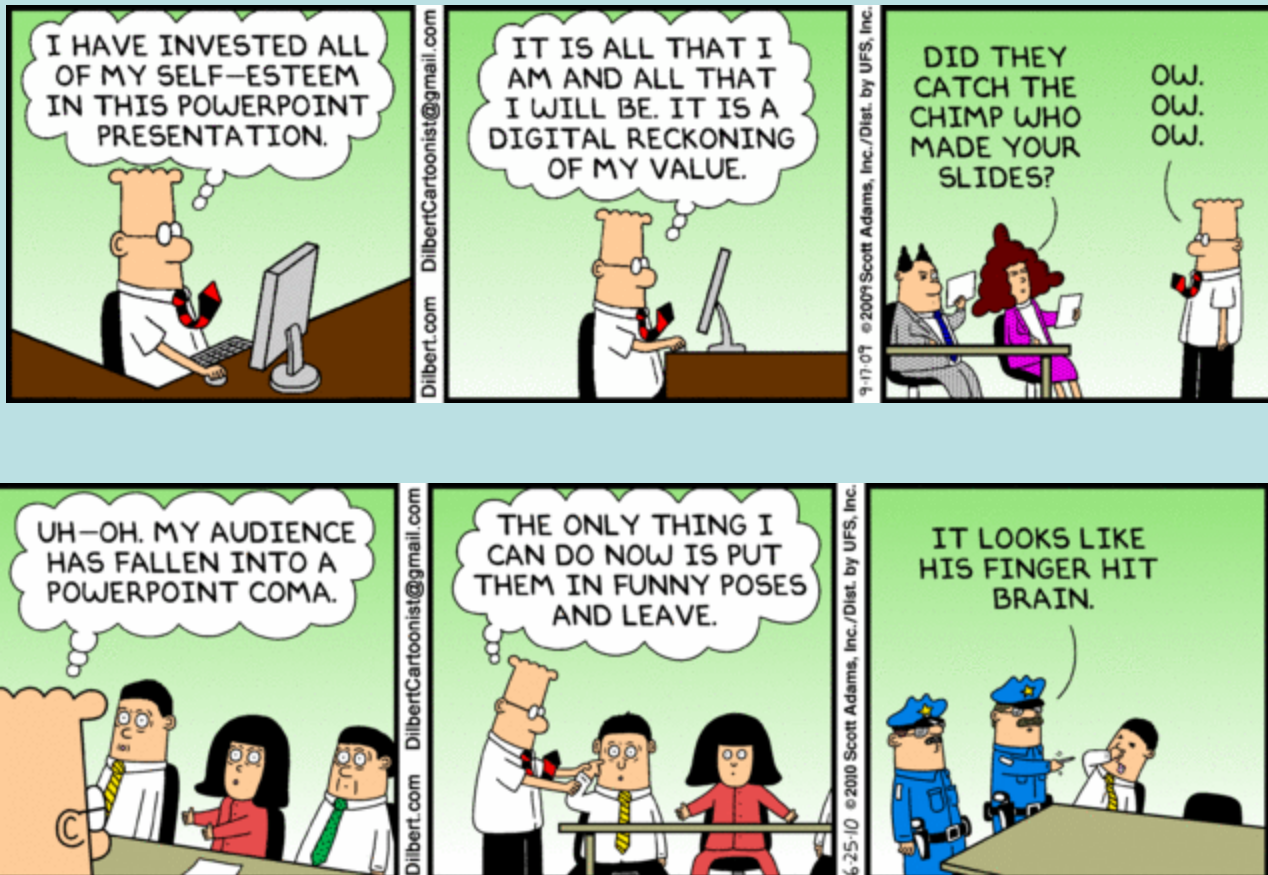


Death by powerpoint



Michigan Natural Features Inventory and Natural Heritage Data

Ed Schools

Becca Rogers

MNFI Conservation & GIS Information Section



Michigan
Natural
Features
Inventory

MICHIGAN STATE
UNIVERSITY
EXTENSION

Program of MSU Extension Service

~23 FTE, ~\$2,000,000 salary budget

Completely self funded through grants, contracts, or fee for services

$\frac{1}{2}$ director's salary is the only university support

MNFI Integrated Capabilities

From field surveys to applied research

On staff expertise with Michigan rare biota

Botanists, ecologists, zoologists

Terrestrial and aquatic

Conservation planning capabilities

Statewide to local

GIS analysis and modeling capabilities

Michigan's Natural Heritage Program

Inventory and track Michigan's rarest biota

Elements of biodiversity



420 plant species

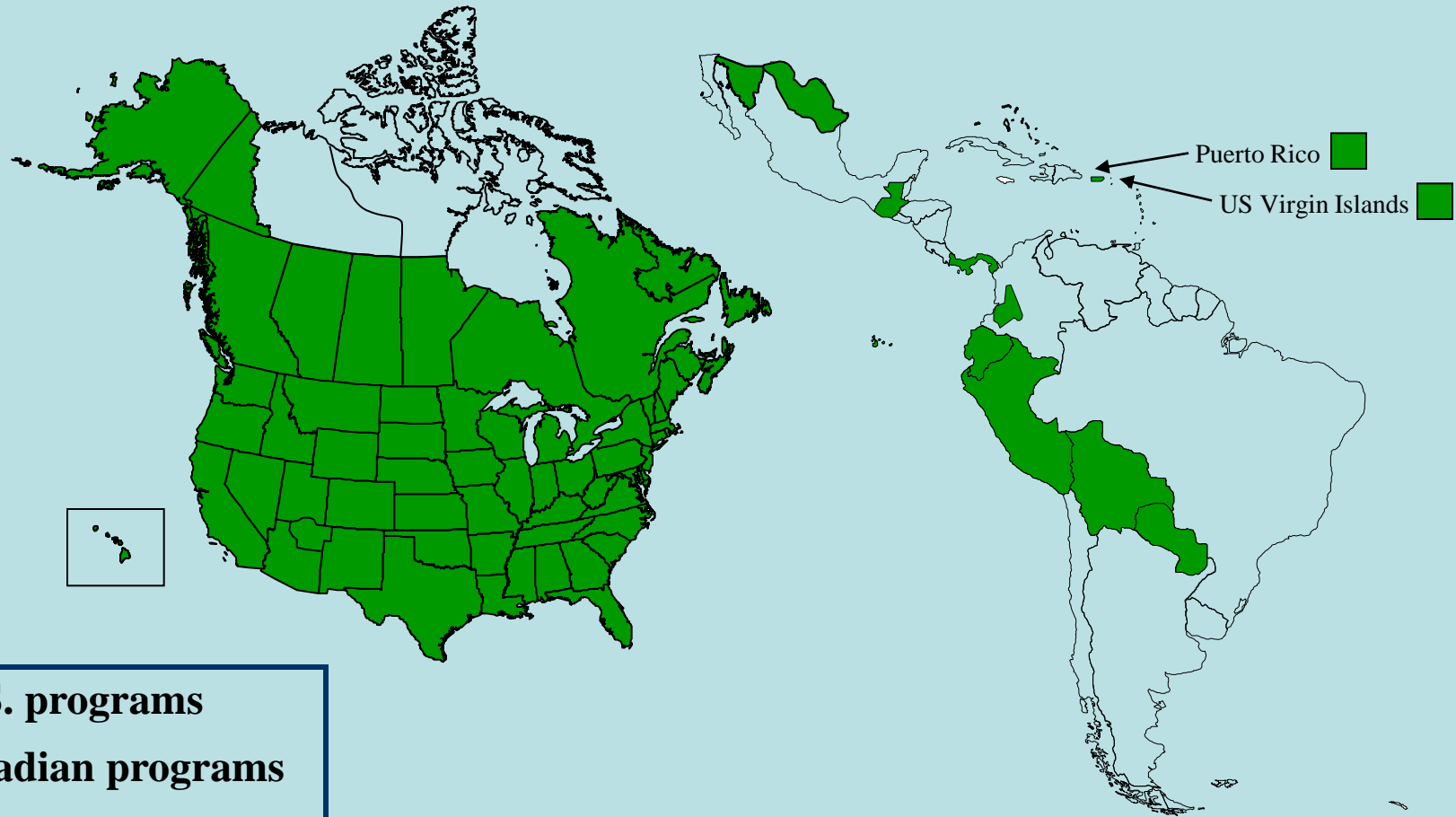


306 animal species



76 natural community types

NatureServe's Member Programs: the Network in 2003



57 U.S. programs

8 Canadian programs

**11 Latin American /
Caribbean programs**

NatureServe

Maintains data standards and element global ranks (G ranks)

Maintains the data platform (Biotics)

Work with multi-jurisdictional partners and datasets

Provide Natural Heritage and other training

Partner programs

Yearly data exchange

Local science expertise

Maintain Sub-national ranks (S ranks)

Communicate with NatureServe and network programs

Natural Heritage Database

Track elements  Map element occurrences (EO)

Geographic space known
to contain the element

Sometimes this is very precisely
defined

Sometimes this is only generally
defined



Data Sources

Secondary sources



Museum collections

Herbariums

Published reports

Outside contributors



Data Sources

MNFI surveys



The big caveat!!!!!!!

Absence of evidence
should not be construed
as evidence of absence

No statewide systematic survey for rare species

Database

Building database since 1980



MS-DOS AREV.EXE

Element Occurrence Record

Screen 1 of 7

Identifiers:

ELCODE: EON STATE: FONUM: IDENT: Y
EOCODE: CPR0000000 * 001 * MI
SNAME: PRAIRIE FEN
SCOMNAME: ALKALINE SHRUB/HERB FEN, MIDWEST TYPE
ELEMENT RANKS: GRANK: G3 NRANK: SRANK: S3

Locators:

NATION: US SITECODE:
SITENAME:
SURVEYSITE: LAWRENCE LAKE FEN

PRECISION: S COUNTYCODE: COUNTYNAME: LOCALJURIS:
MIBARR Barry

Window Enter Sv | SoftKeys Relations EOR | CPR0000000*0

F1-Help CF2-Concept Help F2-Options F6-Softkeys F8-Clear F9-Save CF10-Filter

Data Mapping

Occurrence mapped as a Lat/Long point with a mapping precision



Second

Minute

General

GIS Unplugged

Biotics 4

Oracle database > 700 linked tables

Not a simple presence/absence database

Spatial front end – it all starts with mapping a space



EO - Drosera anglica (Element Occurrence Species)

File Edit Tools Help

Summary

Higher Taxonomy Code: PDDRO Nation: US Subnation: MI Element ID: 14052

Subnational Scientific Name: Drosera anglica Global Rank: G5

Subnational Common Name: English Sundew Subnat'l Rank: S3

MA/Ownership Additional Topics Documentation Version/QC Other Spatial Attr. Update (OPT2) NestNum (OPT1)

Survey Information EO Rank Description Protection

Survey Type: Quantitative ground survey Note: Surveyors: Arthur, Edward J. - 2002

Survey Date: 2002-08-20 Last Observation Date: 2002-08-20 First Observation Date: 1951

Observations: Numerous plants on open sand and small hummocks along seeping edges of shore and sandy, marly beach pools in front of Thuja along low shore of Hammond Bay, Lake Huron. 2002: 50+ plants growing in interdunal wetland with mucky sand. Periodically inundated, high water table most of the year. Plants vigorous and healthy. minimal disturbance noted.

Contacts: Contact ID Individual Name Institution Name Note

Reporting Needs: Reporting Needs

Research Needs: Research Needs

Element Occurrence ID: 12174 Shape ID: 21010 Universal Key: MI-12174

1 of 1

Data Sensitivity

Species Sensitivity - T & E
species are close to the edge

Potential for accidental or deliberate harm



Private Property



Data Sensitivity

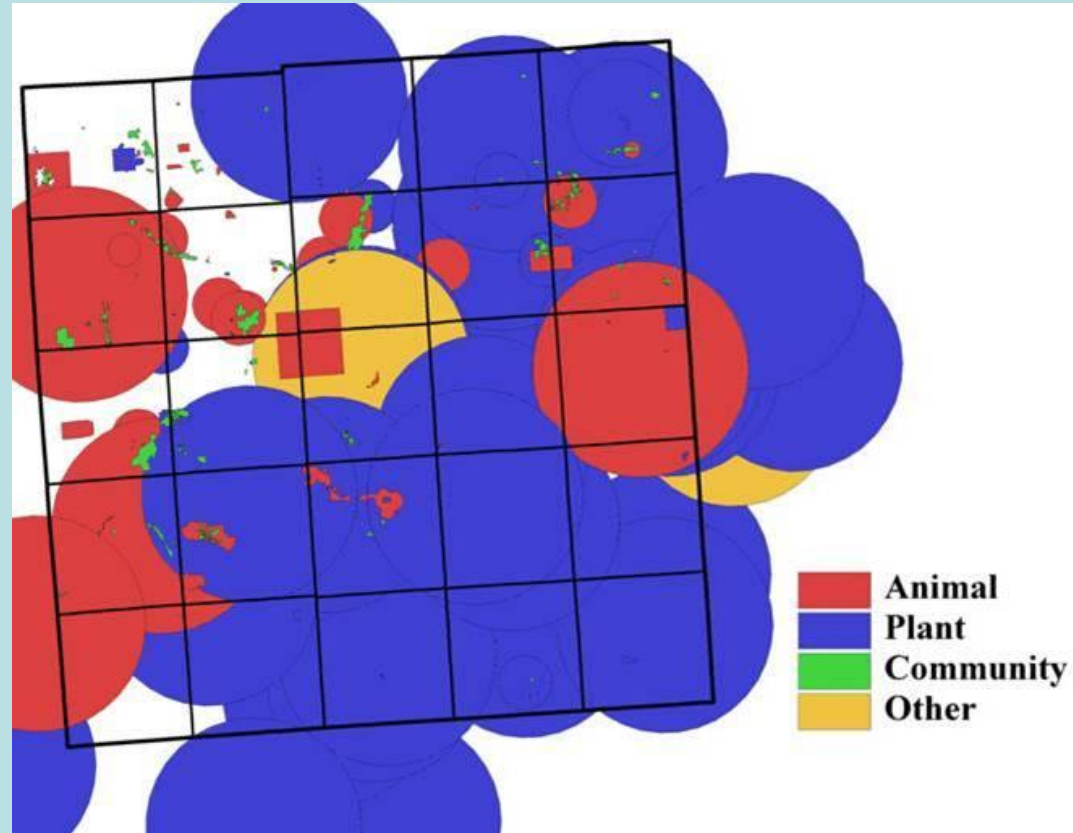
Data interpretation

Database designed by heritage scientists for heritage scientists

These are biological data –
not property lines

Old records still important

Database is constantly changing



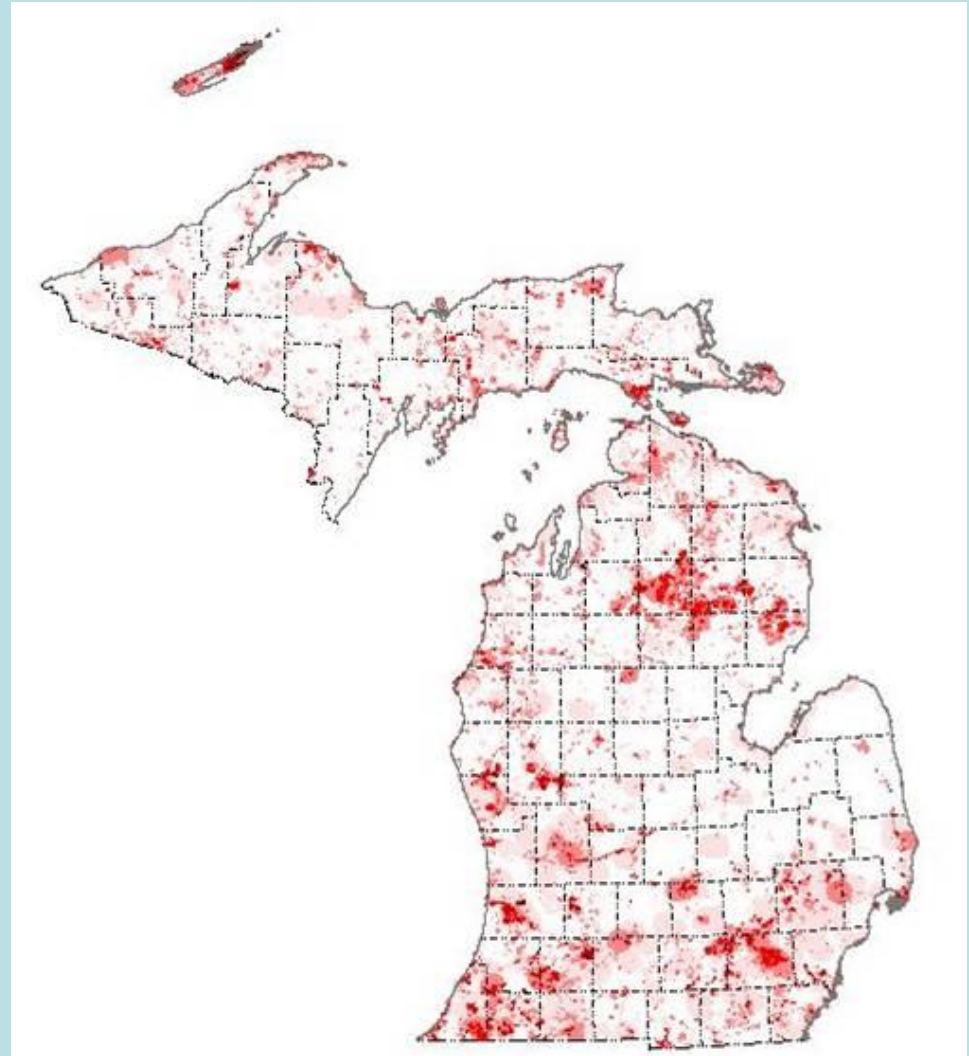
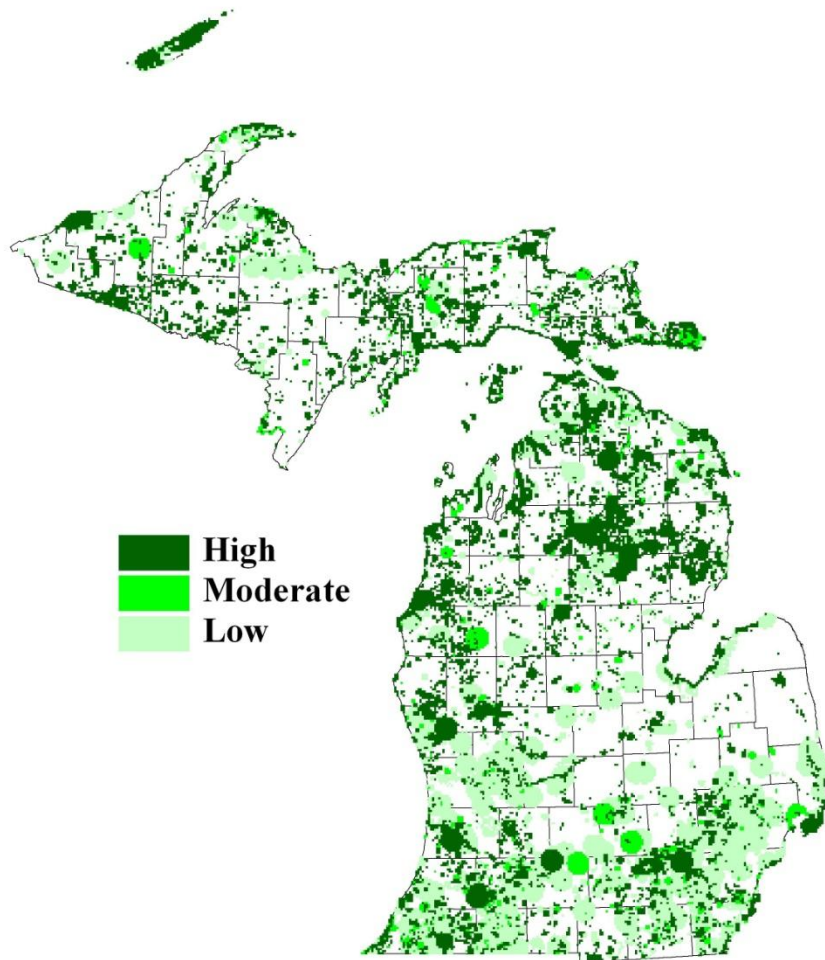
Oakland County EOs

Balancing Act

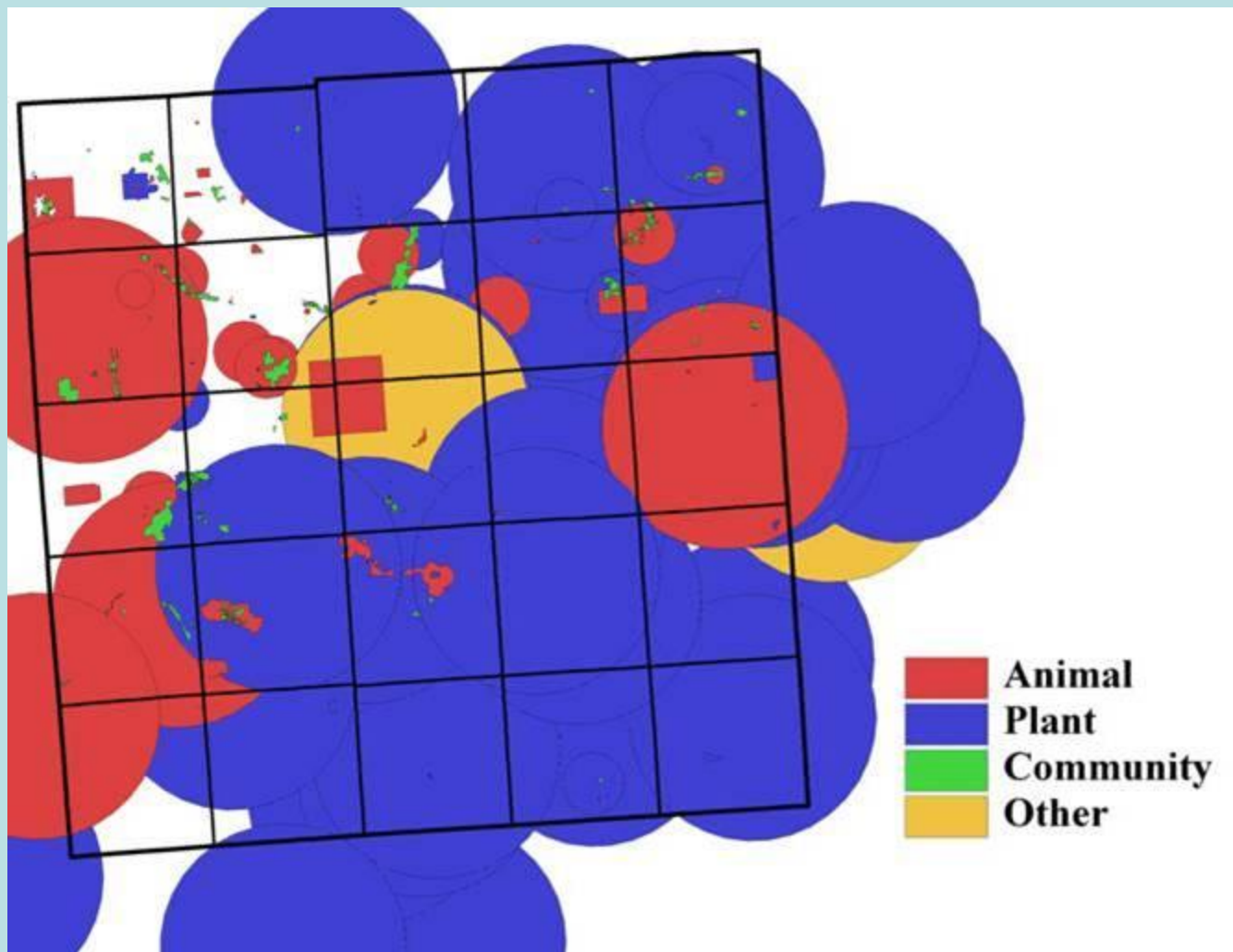


Supplying useful information for conservation
Without compromising sensitivity of the data

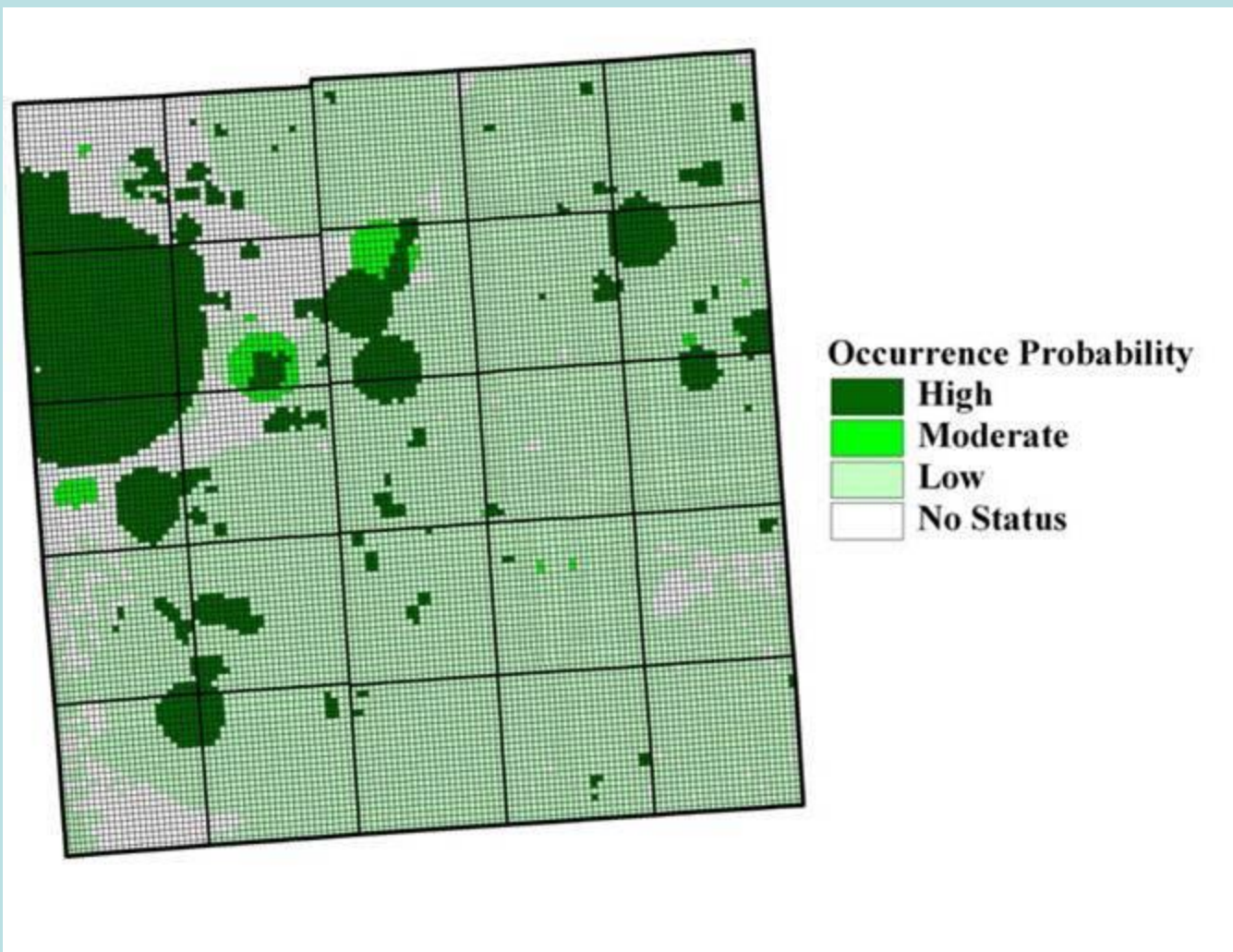
Bio-rarity/Likelihood model on MNFI website



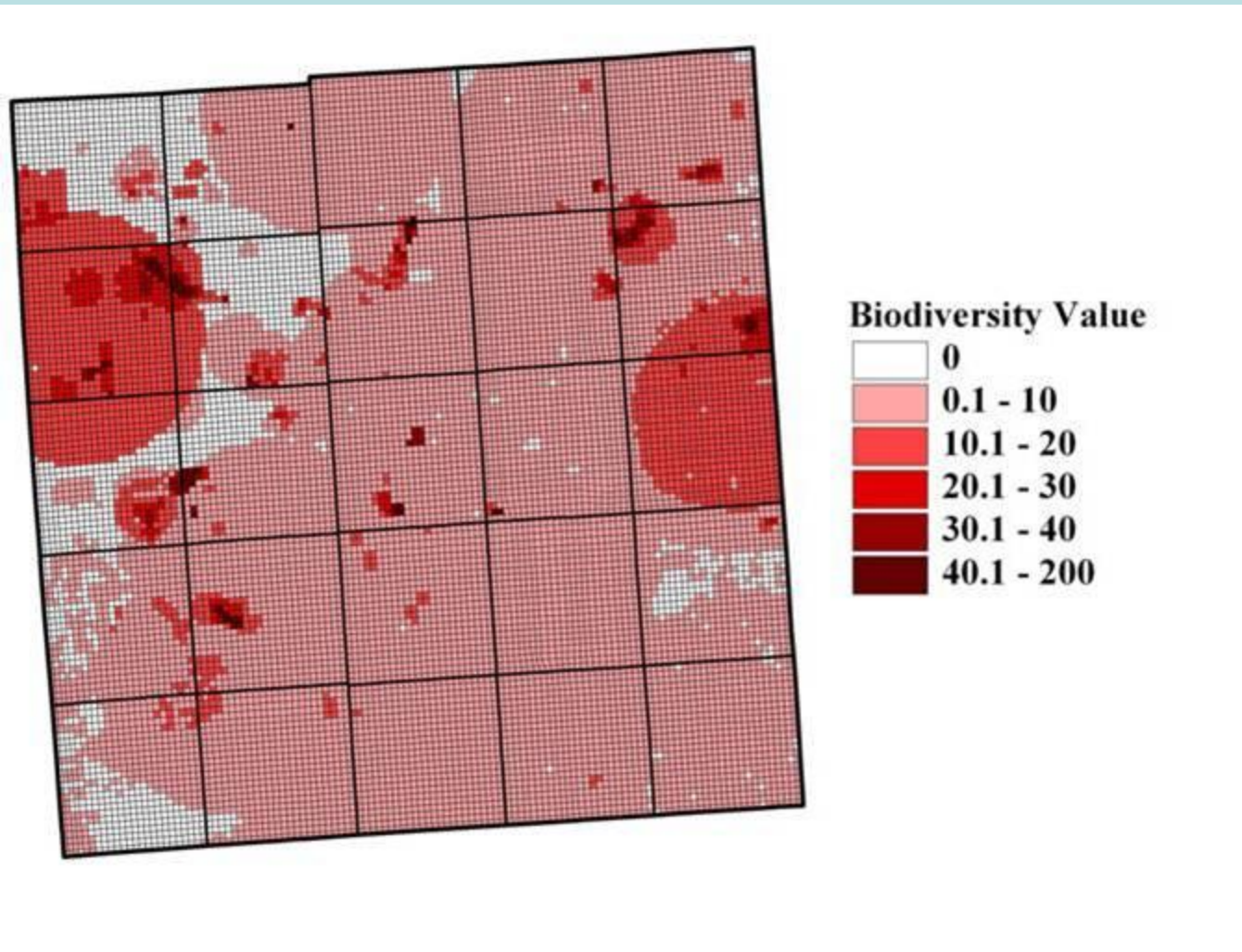
Oakland County Element Occurrences



Oakland County Likelihood



Oakland County Biodiversity




Watershed element tables

Michigan Natural Features Inventory - Microsoft Internet Explorer provided by MI Dept of Natural Resources



File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address http://web4.msue.msu.edu/mnfi/data/watshd/watshd_33.cfm?cn=33 Go Links



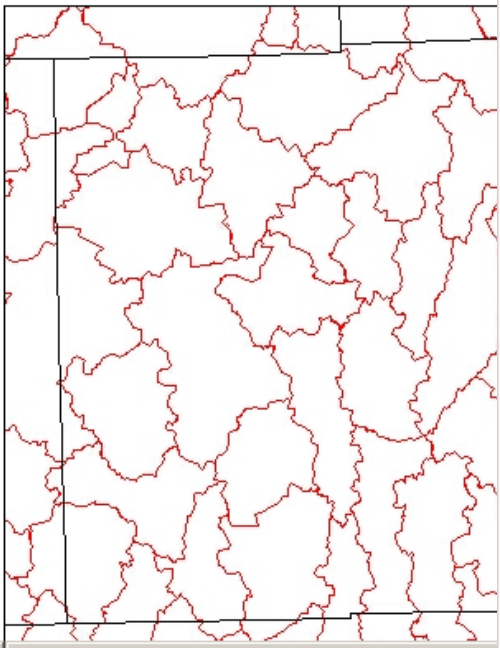
Michigan Natural Features Inventory

About MNFI Contact Us Services Data Resour

Watershed Element Data

Choose watershed from county map below



http://web4.msue.msu.edu/mnfi/data/watshd_dat.cfm?id=4050004

Michigan Natural Features Inventory - Microsoft Internet Explorer provided by MI Dept of Natural Resources

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address http://web4.msue.msu.edu/mnfi/data/watshd_dat.cfm?id=4050004%2014A%2027 Go Links

Watershed Element Data

Select a new county

Watershed ID 4050004 14A 27 Current as of 2/10/2003

Scientific Name	Common Name	Federal Status	State Status
<i>Accipiter cooperii</i>	Cooper's hawk		SC
<i>Alasmodonta marginata</i>	Elktoe		SC
<i>Alasmodonta viridis</i>	Slippershell mussel		SC
<i>Astragalus neglectus</i>	Cooper's milk-vetch		SC
<i>Baptisia lactea</i>	White or prairie false indigo		SC
<i>Carex crus-corvi</i>	Raven's-foot sedge		T
<i>Carex davisii</i>	Davis's sedge		SC
<i>Carex lupuliformis</i>	False hop sedge		T
<i>Carex trichocarpa</i>	Hairy-fruited sedge		SC
<i>Carex typhina</i>	Cat-tail sedge		T
<i>Cryptotis parva</i>	Least shrew		T
<i>Diarrhena americana</i>	Beak grass		T
Esker	Geographical feature		
<i>Galearis spectabilis</i>	Showy orchis		T
<i>Gomphus lineatifrons</i>	Splendid clubtail		SC
<i>Gymnocladus dioica</i>	Kentucky coffee-tree		SC
<i>Hemileuca maia</i>	Barrens buckmoth		SC
<i>Hybanthus concolor</i>	Green violet		SC
<i>Microtus pinetorum</i>	Woodland vole		SC
<i>Myotis sodalis</i>	Indiana bat or indiana myotis	LE	E
<i>Papaipema speciosissima</i>	Regal fern borer		SC

Landscape modeling

Changes 1800 - Present

Unchanged vegetation



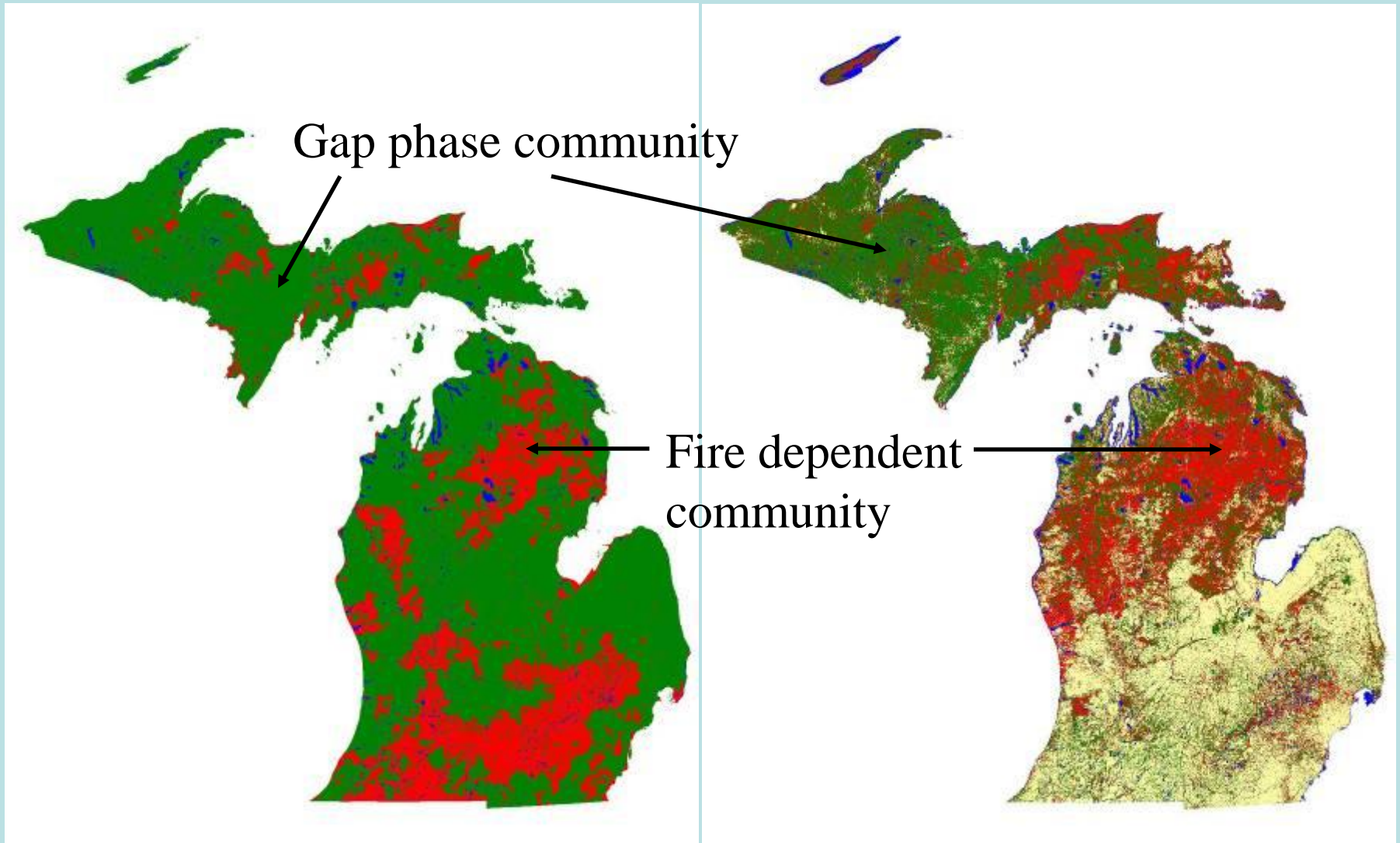
Wetland changes



Changes in natural disturbance patterns

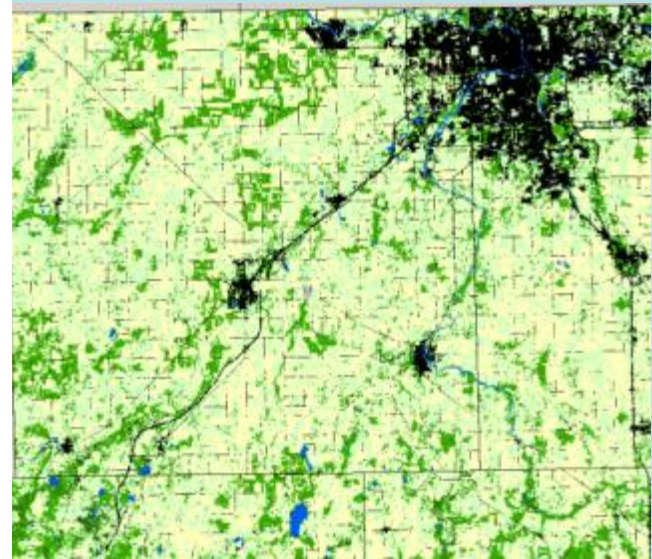
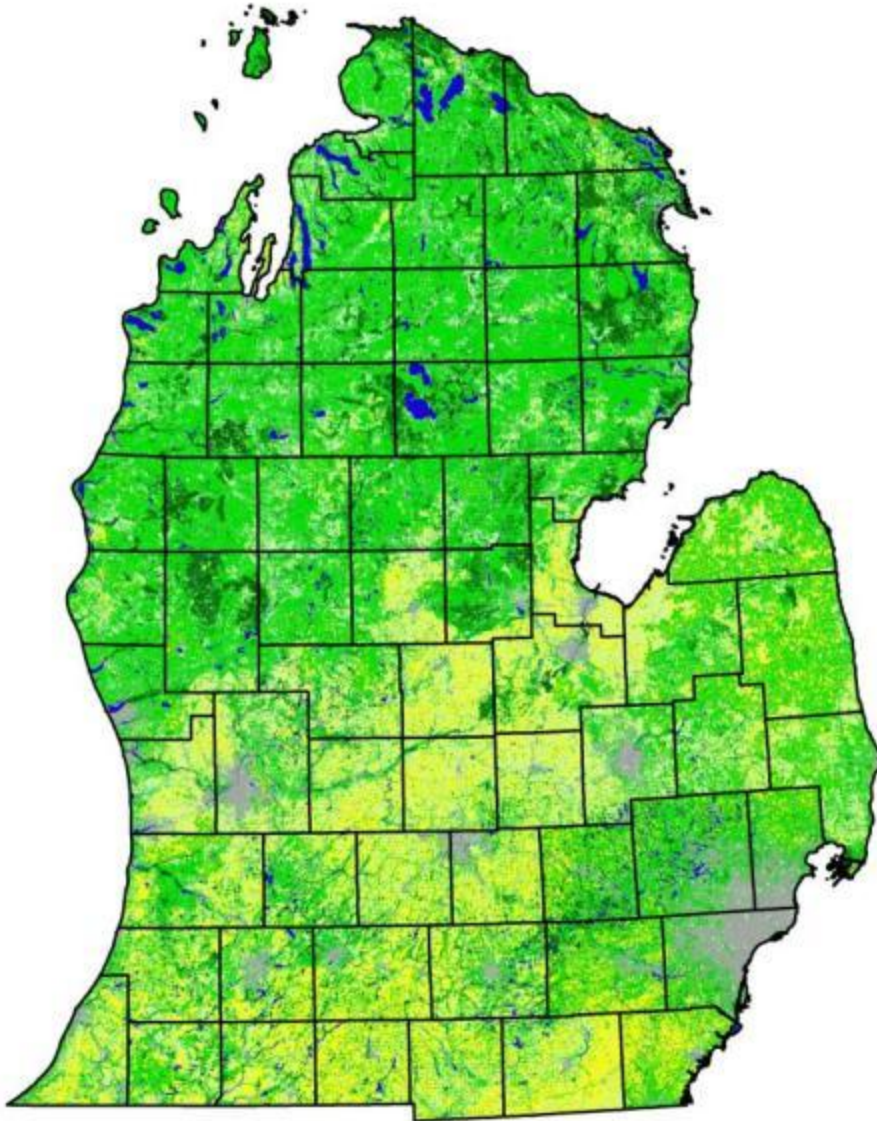
Circa 1800

Circa 2000



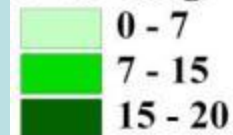
Landscape modeling

2.5 million habitat patches scored for five ecological criteria

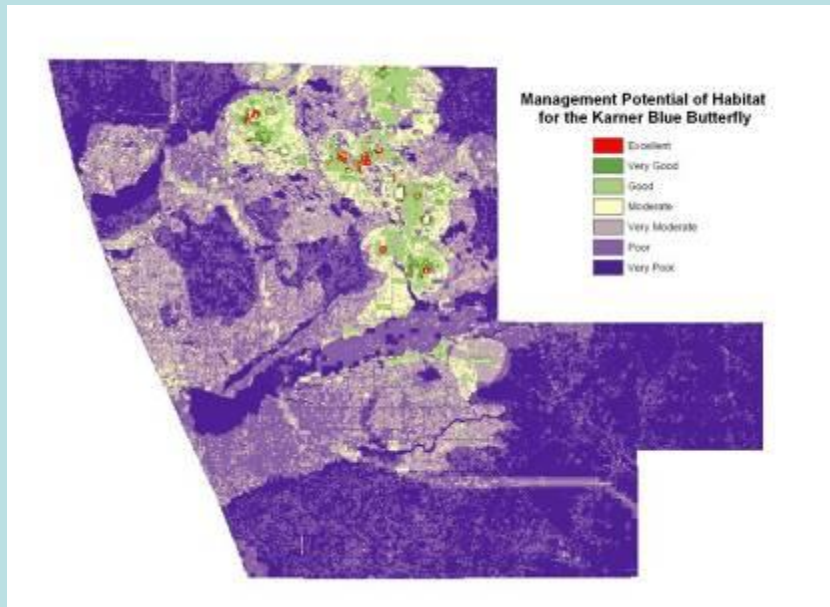


Habitat patch scores

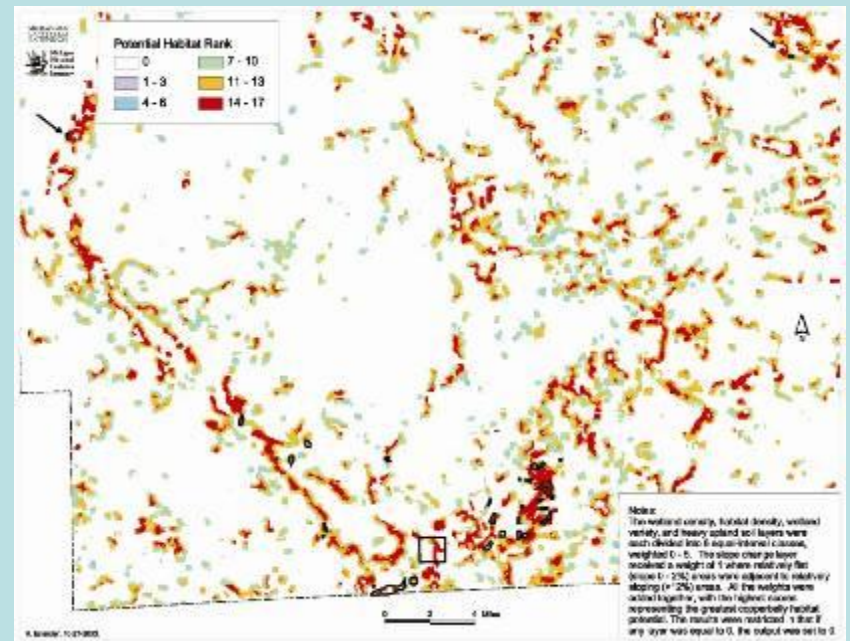
0 - 20 range



Species modeling



Karner blue butterfly

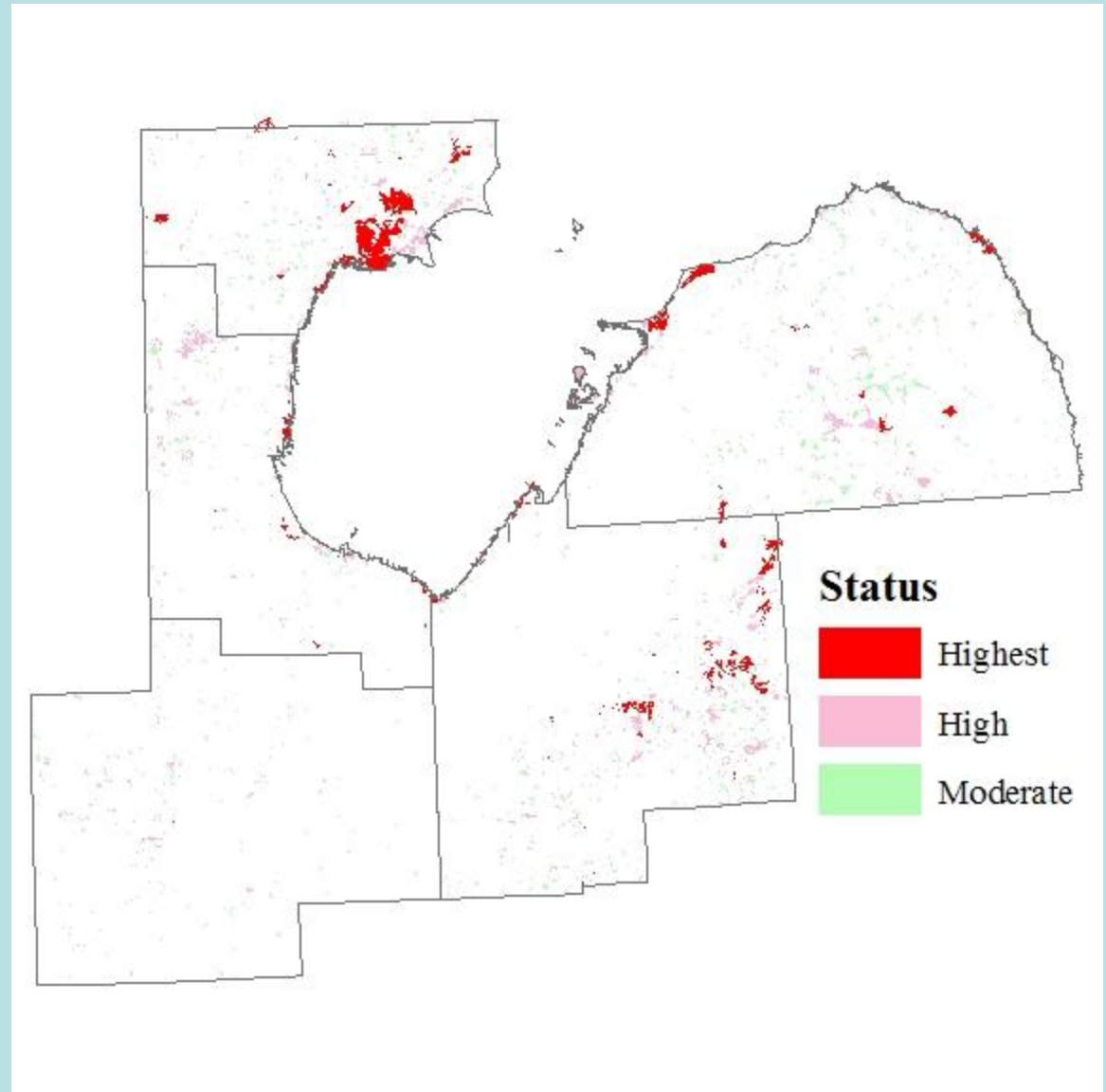


Copperbelly watersnake

Prioritizing Saginaw Bay Wetlands For Acquisition

Working with DEQ, DU, TNC, USFWS, and local conservancies to prioritize wetlands for acquisition

4751 potential sites to 86 highest priority sites



Larger landscape decisions

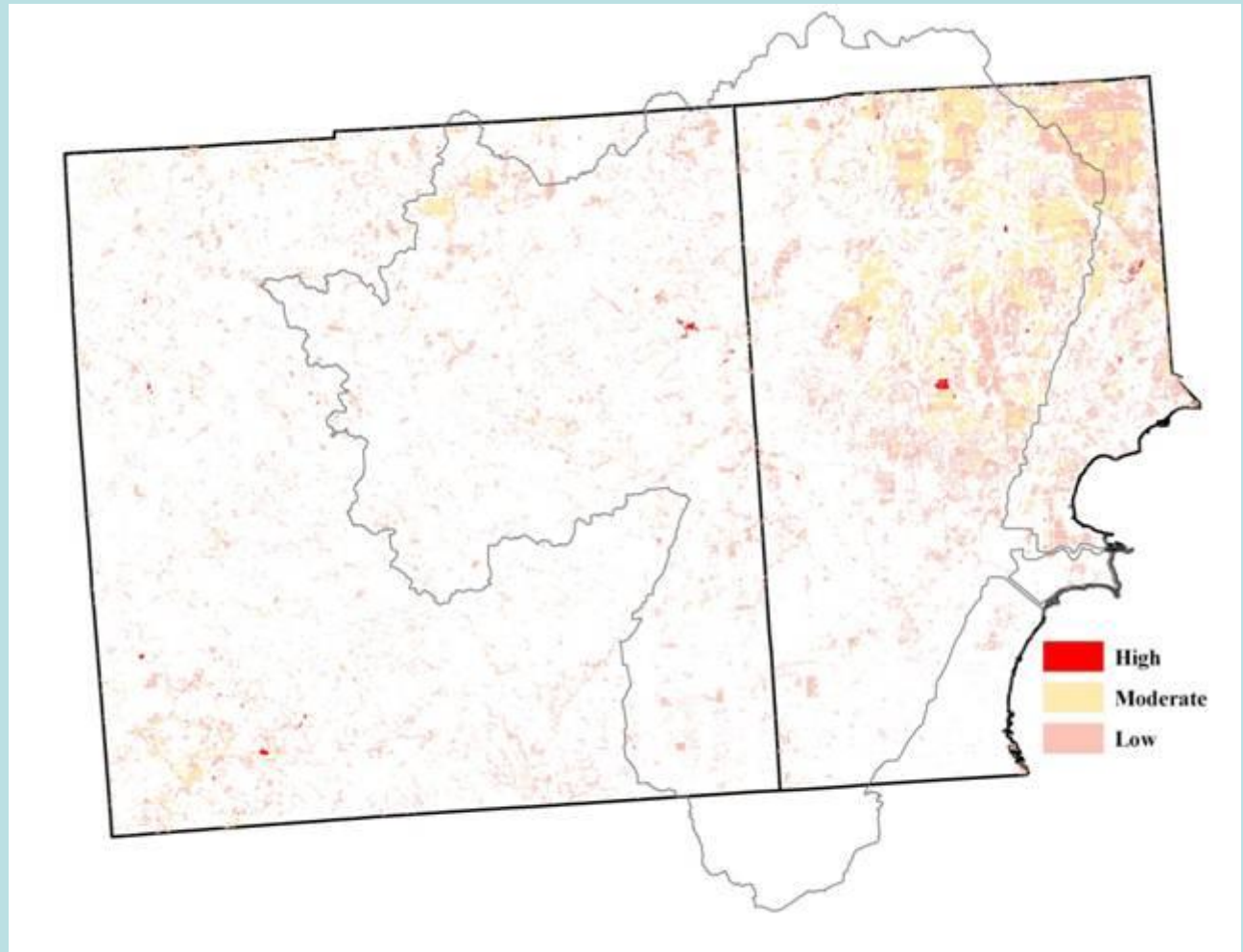
Clinton River AOC Wetland restoration prioritization

Started with over 14,000 potential sites

246 high priority sites within the county boundaries

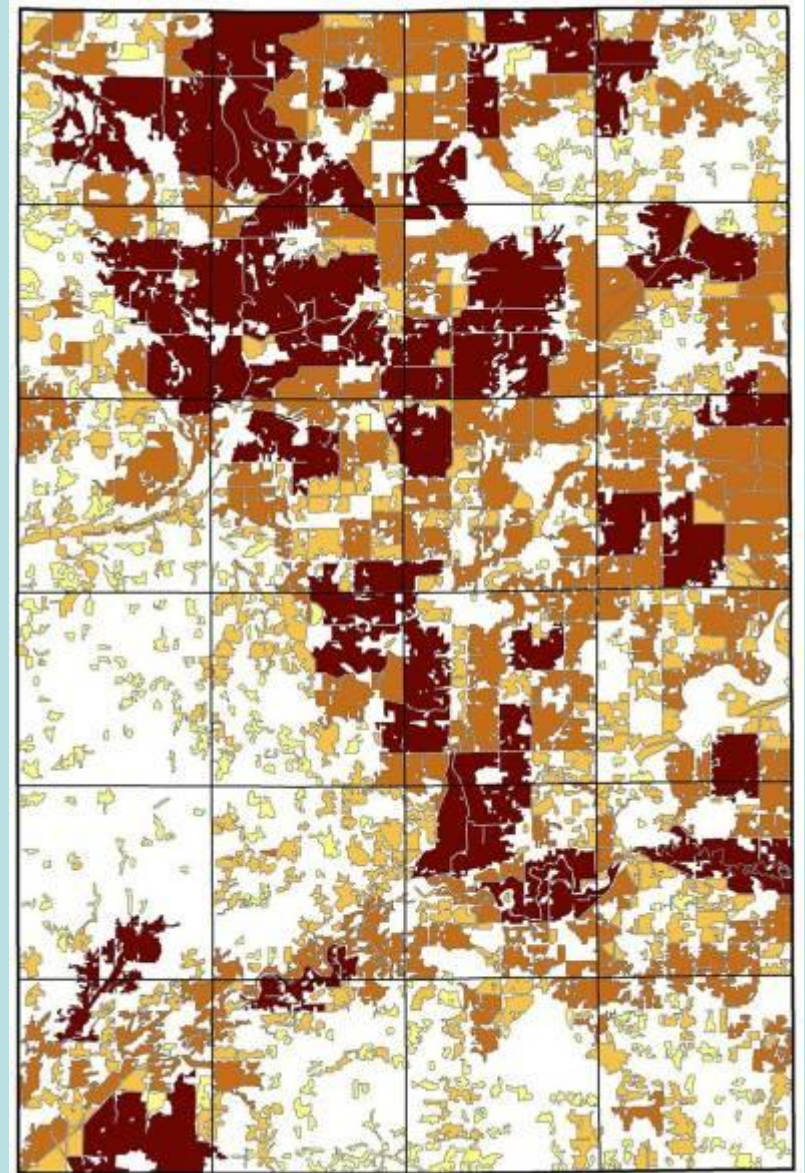
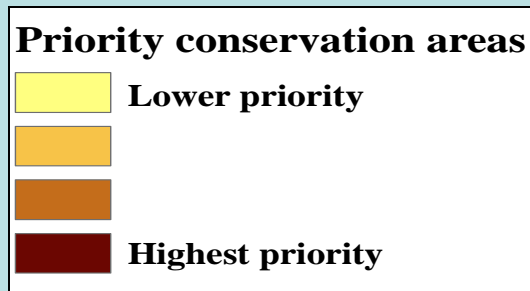
121 within just the AOC boundary

Desktop review got down to 6 sites



Regional, County, or Township land use planning efforts

Newaygo County Potential Conservation Areas



MDOT Managed Areas



Freeways to Fuels

Highway centerlines



Adding lines



Converting to polygons



Buffering inward

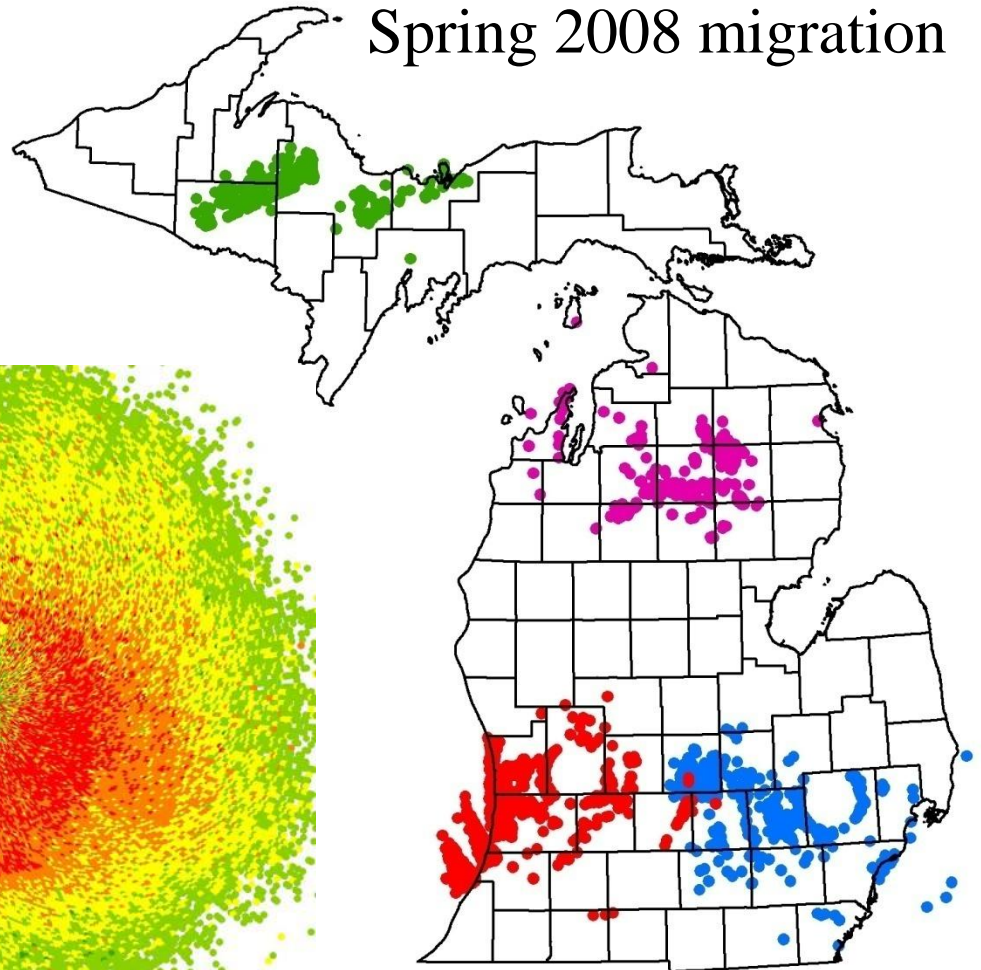
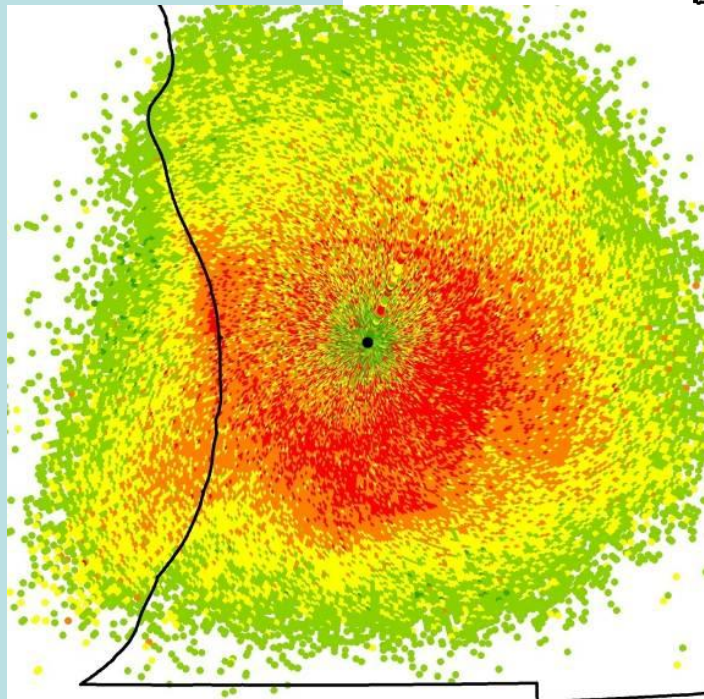


Using NEXRAD weather radar to define bird migration hotspots

Spring 2008 migration

Reflectivity in db

- -23.50 - -1.50
- -1.49 - 5.00
- 5.01 - 9.50
- 9.51 - 14.00
- 14.01 - 33.50



??????????